

TD62008AP, TD62008F, TD62008AF

7CH DARLINGTON SINK DRIVER

The TD62008AP/F/AF are high-voltage, high-current darlington drivers comprised of seven NPN darlington pairs.

All units feature integral clamp diodes for switching inductive loads and protective diodes against a negative input voltage.

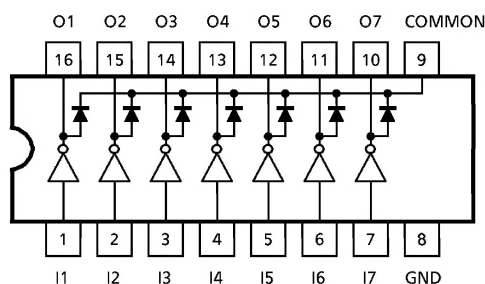
The TD62008AP/F/AF are suitable for interfaces from minus and plus dual supply voltage system to plus single supply voltage system.

Applications include relay, hammer, lamp and display (LED) drivers.

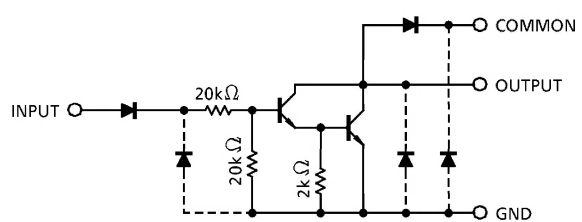
FEATURES

- Output current (single output) 400mA (Max.)
- High sustaining voltage output 50V (Min.)
- Output clamp diodes
- Protective diodes against a negative input voltage
- Inputs base resistor $R_{IN} = 20k\Omega$
- Inputs compatible with 9~15V PMOS, CMOS.
- Package type-AP : DIP-16pin
- Package type-F, AF : SOP-16pin

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



(Note) The input and output parasitic diodes cannot be used as clamp diodes.

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining Voltage	AP / AF	V _{CE} (SUS)	– 0.5 ~ 50	V
	F		– 0.5 ~ 35	
Output Current		I _{OUT}	400	mA/ch
Input Voltage		V _{IN}	– 40 ~ 40	V
Clamp Diode Reverse Voltage	AP / AF	V _R	50	V
	F		35	
Clamp Diode Forward Current		I _F	400	mA
Power Dissipation	AP	P _D	1.47	W
	F / AF		0.625 (Note)	
Operating Temperature		T _{opr}	– 40 ~ 85	°C
Storage Temperature		T _{sta}	– 55 ~ 150	°C

(Note) On Glass Epoxy PCB
(30 × 30 × 1.6mm Cu 50%)

RECOMMENDED OPERATING CONDITIONS (Ta = – 40 ~ 85°C)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage	AP / AF F	V _{CE} (SUS)	0 0	— —	50 35	V
Output Current		I _{OUT}	DC 1 Circuit, T _{pw} = 25%, Duty = 40% T _{pw} = 25ms, Duty = 10%, 7 Circuits	0 0	400 200	mA
Input Voltage		V _{IN}	– 35	—	35	V
Clamp Diode Reverse Voltage	AP / AF F	V _R	— —	— —	50 35	V
Clamp Diode Forward Current		I _F	—	—	400	mA
Power Dissipation	AP F / AF	P _D	— (Note)	— —	0.52 0.325	W

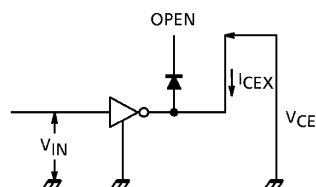
(Note) On Glass Epoxy PCB (30 × 30 × 1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

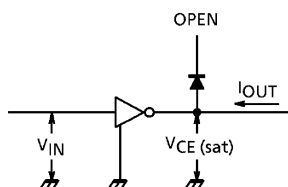
CHARACTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Leakage Current	AP / AF	I _{CEX}	1	V _{OUT} = 50V	—	—	100	μA	
	F			V _{OUT} = 35V	—	—	100		
Collector-Emitter Saturation Voltage		V _{CE} (sat)	2	I _{OUT} = 400mA	—	1.3	2.4	V	
				I _{OUT} = 200mA	—	1.0	1.6		
Input Current	“H” Level	I _{IN} (ON)	4	V _{IN} = 18V	—	0.85	1.8	mA	
				V _{IN} = 35V	—	—	3.8		
	“L” Level	I _{IN} (OFF)	4	V _{IN} = − 35V	—	—	− 20	μA	
DC Current Transfer Ratio		h _{FE}	3	V _{CE} = 4V, I _{OUT} = 350mA	1000	3000	—		
Clamp Diode Reverse Current		I _R	5	V _R = 50V, V _R = 35V (Type-F)	—	—	100	μA	
Clamp Diode Forward Voltage		V _F	6	I _F = 400mA	—	1.5	2.4	V	
Turn-On Delay	AP / AF	t _{ON}	7	C _L = 15pF	V _{OUT} = 50V, R _L = 156Ω	—	0.1	—	μs
	F				V _{OUT} = 35V, R _L = 110Ω				
Turn-Off Delay	AP / AF	t _{OFF}			V _{OUT} = 50V, R _L = 156Ω	—	0.2	—	μs
	F				V _{OUT} = 35V, R _L = 110Ω				

TEST CIRCUIT

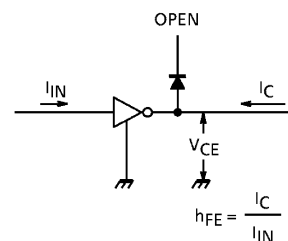
1. I_{CEX}



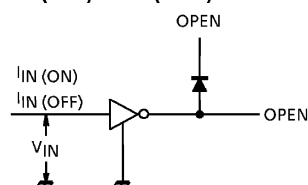
2. $V_{CE(sat)}$



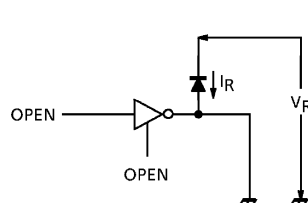
3. h_{FE}



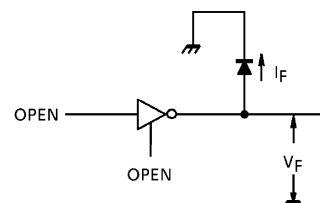
4. $I_{IN(ON)}$, $I_{IN(OFF)}$



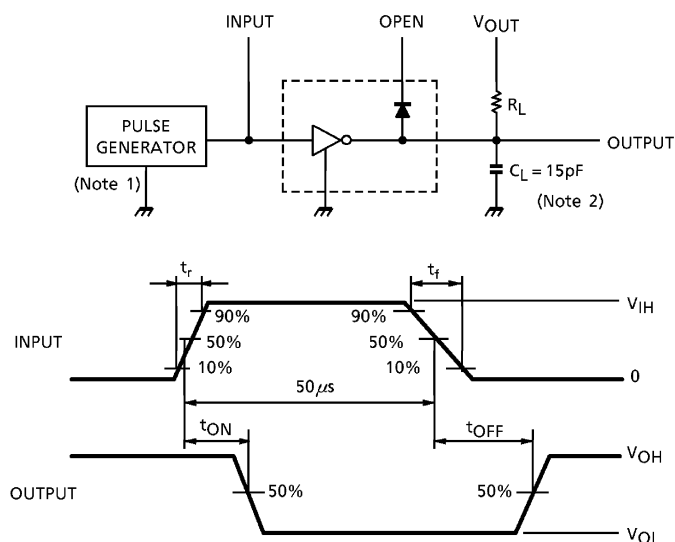
5. I_R



6. V_F

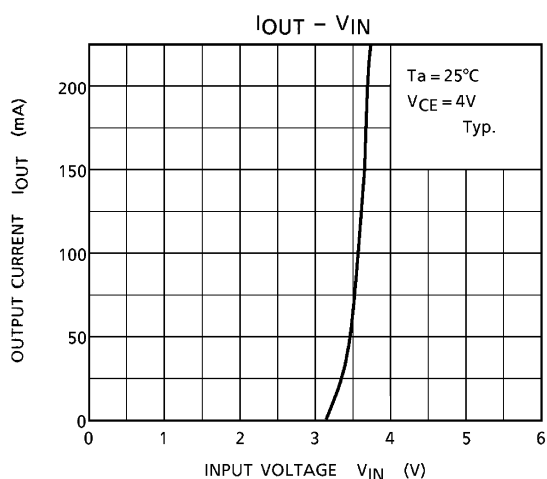
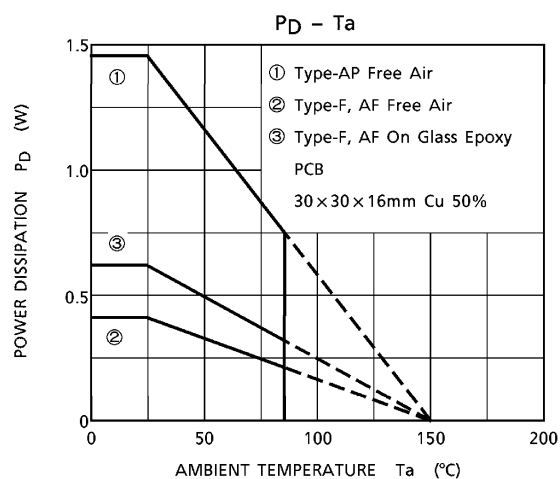
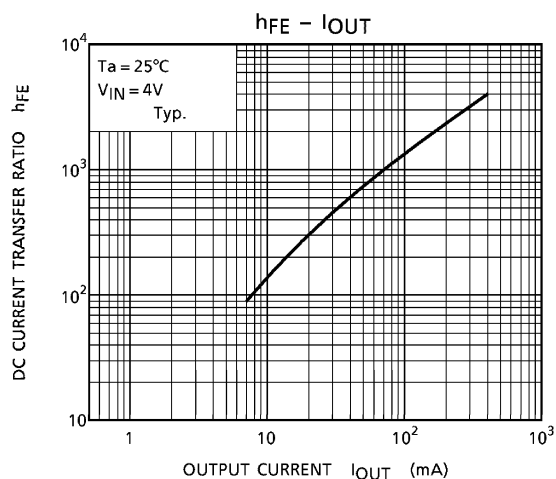
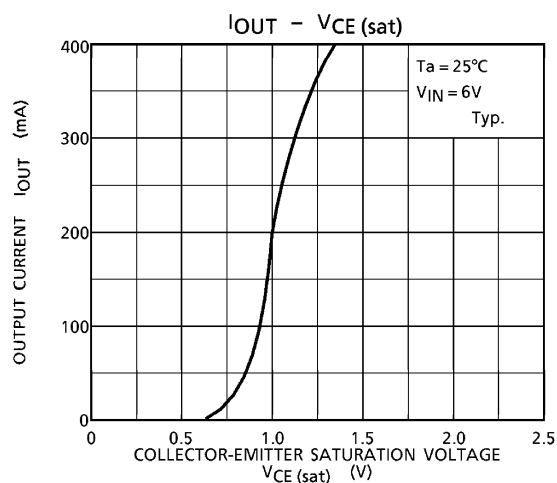
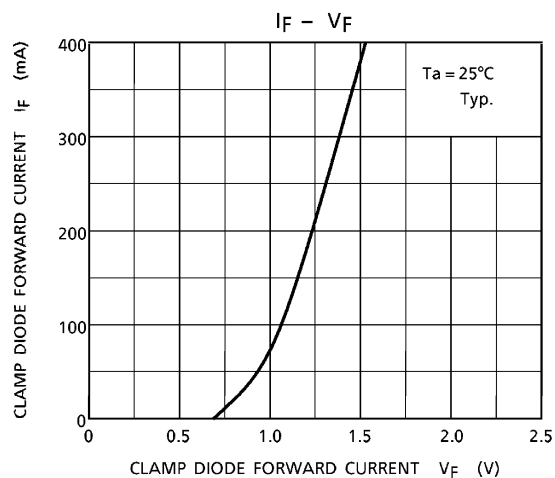
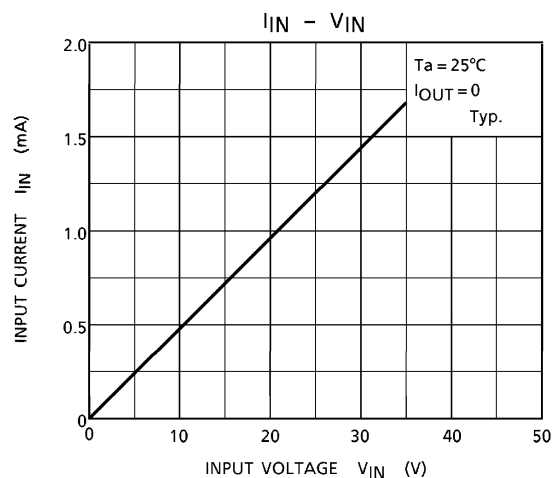


7. t_{ON} , t_{OFF}



PRECAUTIONS for USING

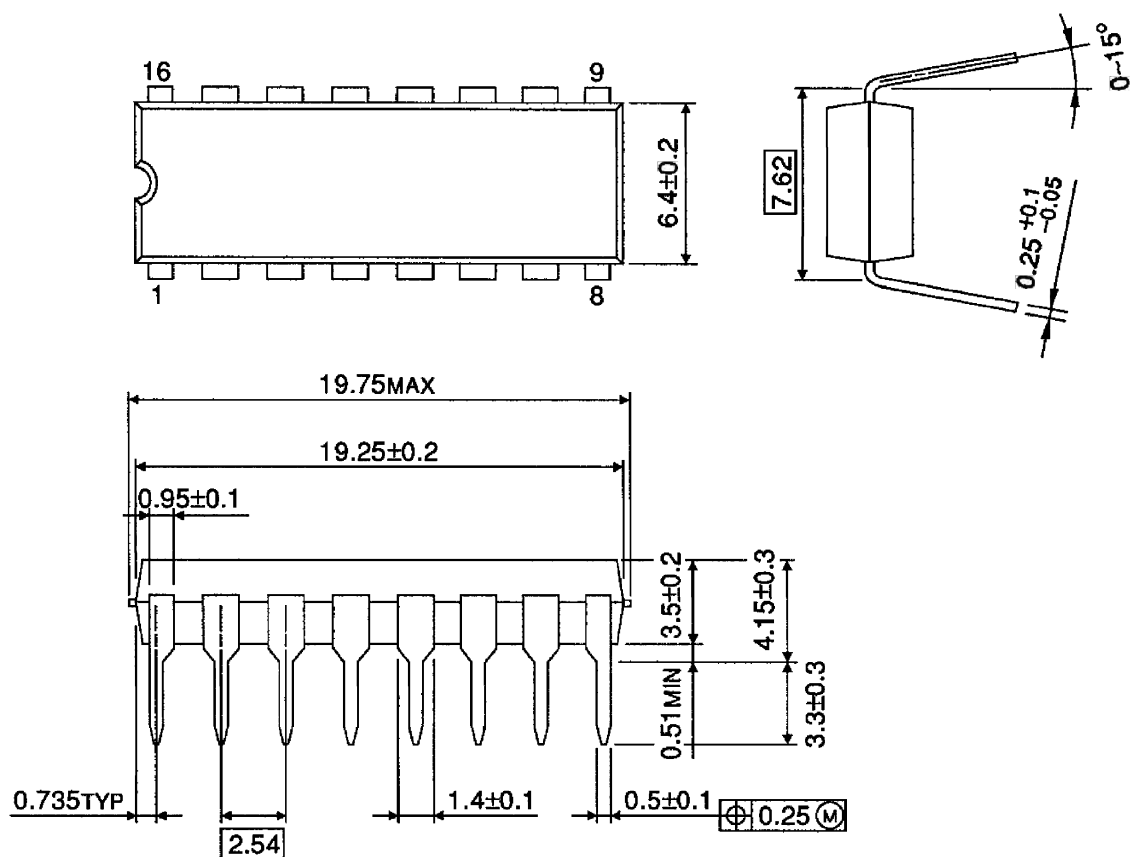
Utmost care is necessary in the design of the output line, COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



OUTLINE DRAWING

DIP16-P-300-2.54A

Unit : mm

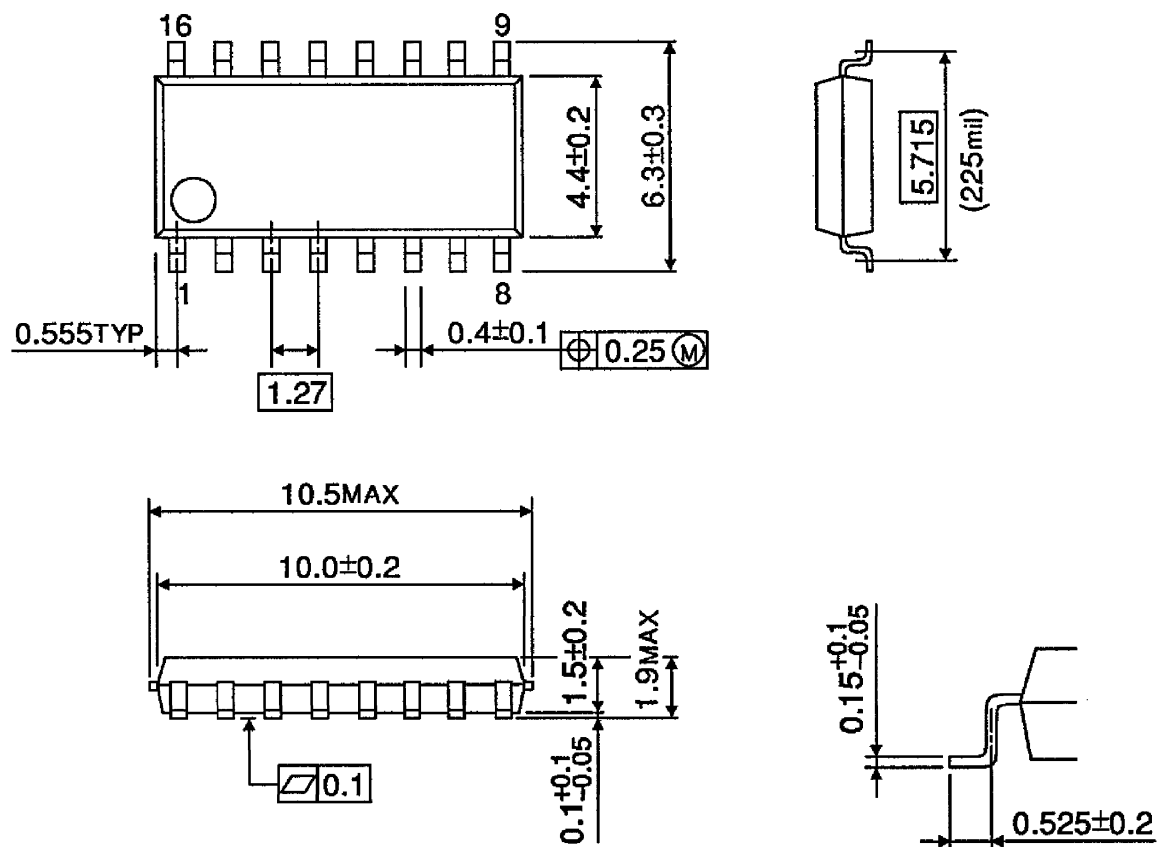


Weight : 1.11g (Typ.)

OUTLINE DRAWING

SOP16-P-225-1.27

Unit : mm



Weight : 0.16g (Typ.)